

NEOARCTURUS BARNARD, 1914: DIAGNOSES OF THE GENUS
AND ITS TYPE SPECIES AND SUBSTITUTION FOR THE NOMEN
NUDUM 'MICROARCTURUS' NORDENSTAM, 1933
(ISOPODA, ARCTURIDAE)

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(With 3 figures)

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ABSTRACT

The arcturid isopod genus *Neoarcturus* Barnard and its type species *N. oudops* are rediagnosed largely as follows: body not geniculate between pereonites 4 and 5; pereopod 1 a gnathopod; propodus ovoid, with mesial and posterior setae; dactylus stout, with mesial setae and well-developed unguis; pereopods 2-4 with double row of long setae, dactylus with elongate unguis; male pleopod 1 exopod thickened, with lateral setal row, apex bilobed, inner lobe with long plumose setae, outer lobe carrying distal end of open duct on posterior surface; endopod shorter, membranous; male pleopod 2 with short appendix masculina; uropod with two rami.

Twenty-eight species previously assigned to the nomen nudum '*Microarcturus*' Nordenstam are reassigned, most to *Neoarcturus*.

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INTRODUCTION

In 1914 Barnard erected the genus *Neoarcturus* for a single species, *Neoarcturus oudops*. The generic name has not been used for any other species.

Nordenstam (1933) proposed the name '*Microarcturus*' for a genus to accommodate twelve (plus possibly two) species of *Arcturus* Latreille and *Antarcturus* zur Strassen. A type species was not selected by Nordenstam nor by any subsequent worker. The name is therefore a nomen nudum (ICZN Article 13 (b)). In spite of this the name has been widely used and, in addition to the species listed by Nordenstam, 13 species have been assigned to *Microarcturus* or described as species of it (Hale 1946; Kensley 1975, 1977, 1978a, 1978b, 1984; Kussakin 1967, 1982).

As well as being a nomen nudum and therefore unavailable, Nordenstam's name poses additional problems, not the least being that the generic concept is poorly defined. He diagnosed the genus as follows: 'Antennae shorter than the body, with a short flagellum consisting of three joints (occasionally two or four). Abdomen short, never longer than the last four pereion segments together, (pleotelson posteriorly pointed or cleft). Small forms.'

These characters are weak and not clear cut. At least two of the three species examined by Nordenstam ('*M.*' *rugosus* and '*M.*' *stebbingi*) and some of the others listed by him can be readily assigned to the older genus *Neoarcturus* Barnard, 1914. The remaining species are a heterogeneous assemblage, some of which have already been placed in other genera (Schultz 1981).

I suggest that the name, already a nomen nudum, be allowed to lapse. Since *Neoarcturus*—a suitable substitute name for many species of '*Microarcturus*'—is poorly known, its type species is here redescribed and a new generic diagnosis presented. The generic positions of all species previously allocated to '*Microarcturus*' are discussed on the basis of the literature.

The material of *Neoarcturus oudops* examined in the course of this study was lent by the South African Museum (SAM) and Nordenstam's material of '*Microarcturus*' *rugosus* and '*M.*' *digitatus* by the Swedish Museum of Natural History. Redescription of Nordenstam's species is beyond the scope of this short contribution.

DESCRIPTION

Neoarcturus Barnard, 1914

Neoarcturus Barnard, 1914: 213–214, 216; 1940: 508. Nordenstam, 1933: 115.
'*Microarcturus*' Nordenstam, 1933: 128. Hale, 1946: 199–200. Kensley, 1975: 47, 54; 1984: 234–238.
Antarcturus (*Microarcturus*) Kussakin, 1982: 310.

Type species. *Neoarcturus oudops* Barnard, 1914 (by monotypy).

Diagnosis

Body not geniculate between pereonites 4 and 5. Head coalesced with pereonite 1. Pereonites 2, 3 and 4 subequal in length, broader in female than male. Pleonal segments completely fused to each other and to pleotelson. Antenna 1 flagellum with short first article, second long article with distal aesthetascs, and third minute article with aesthetascs. Antenna 2 with flagellum of three articles, the last an elongate claw. Pereopod 1 a gnathopod; propodus ovoid, with mesial and posterior setae; dactylus stout, with mesial setae and well-developed unguis. Pereopods 2–4 with double row of long setae; dactylus with elongate unguis. Pereopods 5–7 ambulatory. Male pleopod 1 exopod thickened, with lateral setal row, apex bilobed, inner lobe with long plumose setae, outer lobe carrying distal end of open duct on posterior surface; endopod

shorter, membranous. Male pleopod 2 with short appendix masculina. Uropod with two rami.

Remarks

The similarity between the species that should now be placed in *Neoarcturus* was discussed by Kensley (1984) under the name '*Microarcturus*'. He noted the problems with Nordenstam's definition and suggested that they were held together by general habitus and male pleopods rather than the characters used by Nordenstam. He figured 12 South African species differing mostly in ornamentation and ranging from granulate to obviously tuberculate. Tuberculation was used by Schultz (1981) to differentiate some of these species as members of his new genus *Rectarcturus*. Given the wide range of forms seen in the suite of South African species, separation of *Rectarcturus* from *Neoarcturus* is hard to justify.

Most genera of the Arcturidae have been loosely defined. It is my belief that characters such as the form and setation of pereopod 1, the nature of the male pleopods, and the uropodal rami will shed light on affinities but, until the family is revised, relationships cannot be fully explored.

The species previously assigned to '*Microarcturus*' may be discussed in groups as follows.*

1. Species that are almost certainly, in my view, placed in *Neoarcturus*: *Antarcturus hirticornis* Monod, 1926; *Arcturus stebbingi* Beddard, 1886; *Microarcturus barnardi* Kensley, 1984; *M. biserialis* Kensley, 1978; *M. dayi* Kensley, 1977; *M. halei* Kensley, 1984; *M. longispinus* Kensley, 1984; *M. mawsoni* Hale, 1946; *M. nordenstami* Kensley, 1984; *M. quadriconus* Kensley, 1975; *M. rugosus* Nordenstam, 1933; *M. tannerensis* Schultz, 1966; *M. youngi* Kensley, 1978.
2. Species assigned to or placed very close to *Rectarcturus* by Schultz (1981): *Arcturus kophameli* Ohlin, 1901 (type species); *A. patagonicus* Ohlin, 1901; *Antarcturus similis* Barnard, 1925; *M. laevis* Kensley, 1975; *M. ornatus* Kensley, 1975. These could also be species of *Neoarcturus*.
3. A species placed in *Pseudarcturella* Tattersall by Hale (1946): *Arcturus oculatus* Beddard, 1886.
4. A species placed in *Pseudidothea* Ohlin, 1901 (*Pseudidotheidae*) by Sheppard (1957): *Microarcturus scutatus* Stephensen, 1947.
5. Species, in Schultz's judgement, perhaps related to *Acantharcturus* Schultz, 1981: *Antarcturus acanthurus* Monod, 1925; *M. digitatus* Nordenstam, 1933. These differ from the previous groups in having a uniramous uropod.
6. Another species with uniramous uropod very different from all others but included in '*Microarcturus*' by Hale (1946): *Arcturus serrulatus* Whitelegge, 1904.

* See note added in press.

7. Species too poorly known to be assigned to genus: *Arcturus allicornis* Whitelegge, 1904; *A. dentatus* Whitelegge, 1904; *A. nodosus* Whitelegge, 1904; *A. simplicissimus* Whitelegge, 1904; *M. abnormis* Kussakin, 1967; *Antarcturus kilpoeae* Kussakin, 1971.

Neoarcturus oudops Barnard, 1914

Figs 1-3

Neoarcturus oudops Barnard, 1914: 214-216, pls 18C, 19B; 1920: 397-398; 1940: 493.
Microarcturus oudops Kensley, 1978a: 130-131 (not fig. 3 which is male pleopod 1 of another species of *Neoarcturus*); 1978b: 28 (part: fig. 13A is female of an undescribed species of *Neoarcturus*); 1984: 252 (part: figs 19B, C and probably D, E and F are of a male of *N. oudops*; fig. 19A is female of an undescribed species of *Neoarcturus*).

Material

Holotype, male, off Cape Point, South Africa (SAM-A69, with 2 slides).
1 male, eastern South Africa (SAM-A15472, only pleopod 1 on slide seen).
1 female with slide, eastern South Africa (SAM-A39991 taken from SAM-A17819; remaining 2 males, 3 females, 4 juveniles are another species).

Diagnosis

Integument granulate. Pleotelson with lateral subapical wings, apex broadly acute (see Barnard 1914, pl. 19B; Kensley 1984, fig. 19B-C). Eyes absent. Pereopod 1 propodus with *c.* 16 setulate mesial setae loosely arranged in pairs, posterior margin with *c.* 16 setulate setae in two rows; dactylus with oblique mesial row of seven setae, one separate on anterior margin, four on posterior margin, unguis one-third total length. Pereopod 2 unguis two-thirds total length of dactylus, shorter in pereopods 3 and 4. Male pleopod 1 exopod with 12 lateral simple setae plus four plumose setae, outer lobe with 16 teeth in a curved row on anterior face, inner lobe of apex with six setae; endopod with four apical plumose setae. Male pleopod 2 appendix masculina with club-shaped apex.

Remarks

There has been some confusion over the identity of the South African specimens referable to *Neoarcturus oudops*. The holotype and some of the material identified by Kensley were lent to me by the South African Museum. Ten specimens in one lot from the east coast of South Africa (SAM-A17819) belong to two species differing most obviously in the shape of the pleotelson and setation of the male pleopod 1. Both species have been illustrated by Kensley under the name *Microarcturus oudops* (1984—see synonymy above). The female habitus and male pleopod 1 of other material figured by Kensley (1978a, 1978b) were also not of *N. oudops*.

The specific diagnosis given here therefore is intended to differentiate the species primarily from others from South Africa. More detailed information is contained in the figures of the type material and in the original description.



Fig. 1. *Neoarcturus oudops* Barnard, male holotype (from Barnard's slides which are not clear). A. Last two articles of antenna 1. B-C. Left and right mandibles. D-E. Maxillae 1, 2. F. Left maxilliped. G. Left maxillipedal endite. H. Right pleopod 1, posterior view. I-J. Apex of endopod of pleopod 1, posterior and anterior views. K. Pleopod 2 (no setae shown).



Fig. 2. *Neoarcturus oudops* Barnard, female, SAM-A39991 (left limbs). A-B. Antenna 1 and flagellum. C-D. Antenna 2 and last article of flagellum. E. Pereopod 1. F-G. Pereopod 1 propodus, mesial and lateral views. H. Pereopod 1 dactylus, mesial view. I. Pereopod 2. J. Pereopod 2 dactylus. K. Uropodal rami.

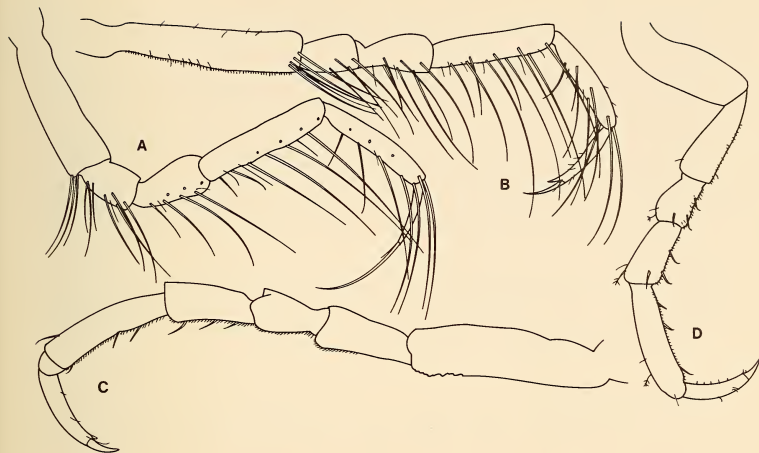


Fig. 3. *Neoarcturus oudops* Barnard, female, SAM-A39991 (left limbs). A-D. Pereopods 3, 4, 5, 7. (Fig. 3 and Fig. 2E, I to same scale.)

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REFERENCES

- BARNARD, K. H. 1914. Contributions to the crustacean fauna of South Africa. 1. Additions to the marine Isopoda. *Annals of the South African Museum* 10 (7): 197-230.
- BARNARD, K. H. 1940. Contribution to the crustacean fauna of South Africa. XII. Further additions to the Tanaidacea, Isopoda, and Amphipoda, together with keys for the identification of hitherto recorded marine and freshwater species. *Annals of the South African Museum* 32 (5): 381-543.
- HALE, H. M. 1946. Isopoda-Valvifera. *Reports of the British, Australian and New Zealand Antarctic Research Expedition* (Series B. Zoology, Botany) 5 (3): 161-212.
- KENSLEY, B. 1975. Marine Isopoda from the continental shelf of South Africa. *Annals of the South African Museum* 67 (4): 35-89.
- KENSLEY, B. 1977. New records of marine Crustacea Isopoda from South Africa. *Annals of the South African Museum* 72 (5): 239-265.
- KENSLEY, B. 1978a. The South African Museum's *Meiring Naude* cruises. Part 7. Marine Isopoda. *Annals of the South African Museum* 74 (5): 125-158.
- KENSLEY, B. 1978b. *Guide to the marine isopods of southern Africa*. Cape Town: Trustees of the South African Museum.

- KENSLEY, B. 1984. The South African Museum's Meiring Naude cruises. Part 15. Marine Isopoda of the 1977, 1978, 1979 cruises. *Annals of the South African Museum* 93 (4): 213-301.
- KUSSAKIN, O. G. 1967. Fauna of Isopoda and Tanaidacea in the coastal zones of the Antarctic and Subantarctic water. [Translation by the Israel Program for Scientific Translations, Jerusalem, 1968.] *Biological Reports of the Soviet Antarctic Expedition (1955-1958)* 3: 220-380.
- KUSSAKIN, O. G. 1982. Marine and brackish-water Crustacea (Isopoda) of cold and temperate waters of the Northern Hemisphere. Suborders Anthuridea, Microcereberidea, Valvifera, Tyloidea. *Opređeliteli po Faune SSR* 131: 1-460. [In Russian.]
- NORDENSTAM, A. 1933. Marine Isopoda of the families Serolidae, Idotheidae, Pseudidotheidae, Arcturidae, Parasellidae and Stenetriidae mainly from the South Atlantic. *Further Zoological Results of the Swedish Antarctic Expedition, 1901-1903* 3: 1-284, pls 1-2, errata.
- SCHULTZ, G. A. 1981. Arcturidae from the Antarctic and Southern seas (Isopoda, Valvifera). Part I. In: *Biology of the Antarctic Seas X. Antarctic Research Series* 32: 63-94.
- SHEPPARD, E. M. 1957. Isopod Crustacea. Part II: The suborder Valvifera. Families: Idotheidae, Pseudiotheidae and Xenarcturidae fam. n. With a supplement to isopod Crustacea, Part I, the family Serolidae. *'Discovery' Reports* 29: 141-198.

NOTE ADDED IN PRESS

Since the completion of this paper Brandt's (1990) paper on Antarctic valviferans has been published. She too recognized the priority of *Neoarcturus* over *Microarcturus*. She erected five new species: *Neoarcturus elongatus*, *N. minutus*, *N. robustus*, *N. sclerosus* and *N. stebbingnordenstami*. The first four of these were figured and described and the last is based on the 146 specimens (from Shag Rock Bank and South Georgia) that Nordenstam (1933) called *Microarcturus stebbingi* Beddard, 1886. No holotype or type locality was selected for this species.

Brandt placed *Antarcturus hirticornis* Monod, 1926, which I suggest is a species of *Neoarcturus*, in a new genus, *Fissarcturus* Brandt.

These species and *N. mawsoni* Hale, all from Antarctica, fit the generic diagnosis given here but differ from *N. oudops* in structure of the male pleopod 1 exopod. They lack teeth on the distal anterior surface and have different setation. The appendix masculina is acute rather than blunt.

BRANDT, A. 1990. *Antarctic valviferans (Crustacea, Isopoda, Valvifera). New genera, new species and redescrptions*. Leiden: E. J. Brill.